

21 March 1966

25X1A  
To:

From:

Subject: INVESTIGATION OF ACCIDENT TO U-2F SERIAL NO. 342

25X1A  
Ref: a. IDC, [ ] dated 18 March 1966

b. Static Test Report, LR 10571, 15 October 1955

The accident involving the U-2F Aircraft Serial No. 342 occurred following practice refueling hook-ups with a tanker at an altitude of 35,000 feet and resulted in the break-up of the aircraft. Witnesses in the tanker stated that apparently the left wing failed as the pilot pulled up and away from the tanker from a position alongside.

At the time of the incident the subject aircraft weighed 17,160 lbs. with a center of gravity at 28.4 percent M.A.C. This center of gravity is at the aft limit as given in the Flight Manual. The speed at the time was approximately 210 to 220 knots calibrated airspeed which corrects to 200 knots equivalent airspeed. The Mach No. at this speed and altitude would be .66.

The fuel loading consisted of 530 lbs. in the sump tank, 2000 lbs. in the auxiliary tanks and about 200 lbs. in the main tanks. Slipper tanks were on, but empty. The aircraft was in the gust configuration; that is, the flaps and ailerons were "shifted" up, thereby reducing tail load.

Using the specific weights, speeds, altitude etc. at the time of the accident, loads were calculated along the wing as a function of load factor for a symmetrical pull-up maneuver. From this study, it was concluded that the most critical item was up-bending in the wing root section. Figure 1 is a plot of wing root bending moment (W.S. 36) versus load factor. Also shown is the calculated ultimate allowable moment corresponding to a symmetrical pull-up load factor of 4.2 g and the static test failing moment corresponding to a factor of 4.5 g (Ref. LR 10571).

Hence, the capability of the airplane in this particular configuration for a symmetrical pull-up maneuver would be from 4.2 to 4.5 g at failure. If the pull-up was combined with aileron action in roll, the center of gravity load factor would be reduced to 80% of the above or about 3.5 g.

Structural and metallurgical examination of the wreckage resulted in the conclusion that the initial failure had occurred in the left hand wing root

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U-2F SERIAL NO. 342

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lower surface as shown in Figures 2 and 3. Metallurgical analysis of the fracture surfaces proved that the failure was a typical static, ductile failure with no evidence of fatigue, stress corrosion or prior damage of any kind. Mechanical properties of the skin and stringers were equal to or higher than specification requirements (Ref. [redacted] to [redacted] dated 18 March 1966). The above is particularly interesting when considering the fact that the subject airplane was over ten years old and had approximately 3000 hours of flight time.

Referring to the static test report, LR 10571, it is noted that the failure shown in Figures 2 and 3 is very similar to the failure which occurred at 110% of ultimate maximum wing up-bending during static test. Excerpted from this report are Figures 4 and 5. Figure 4 shows the wing deflection at 100% of ultimate, and Figure 5 shows the failure at 110% of ultimate load.

From the foregoing it is concluded that the subject airplane failed statically in the left wing root lower surface in a rolling pull-up maneuver of at least 3.5 to 4 g's. The Flight Manual states that the airplane has a limit capability, shifted, of approximately 2.5 g's. It is recommended that an additional statement be inserted calling attention to the fact that pull-ups combined with roll are traditionally limited to a portion of the symmetrical flight load factors.

FRMcH:jwb

Attchs. Figures 1 thru 5

cc: C. L. Johnson  
[redacted]

Approved For Release 2002/06/18 : CIA-RDP74B00447R000100010066-9

SYMMETRICAL FLIGHT  
WING ROOT BENDING MOMENT  
VS. LOAD FACTOR

U-2F, SN 342, 17160 LBS. @ 284 K.M.A.C.  
200 KEAS @ 35000 FT. - SHIFTED

BENDING MOMENT,  $M_x$  @ W.S. 36 INCHES. X0.16

STATIC TEST FAIL.  
ULT. ALLOW.  $M_x$

CAPABILITY LOAD FACTOR

LOAD FACTOR,  $n$

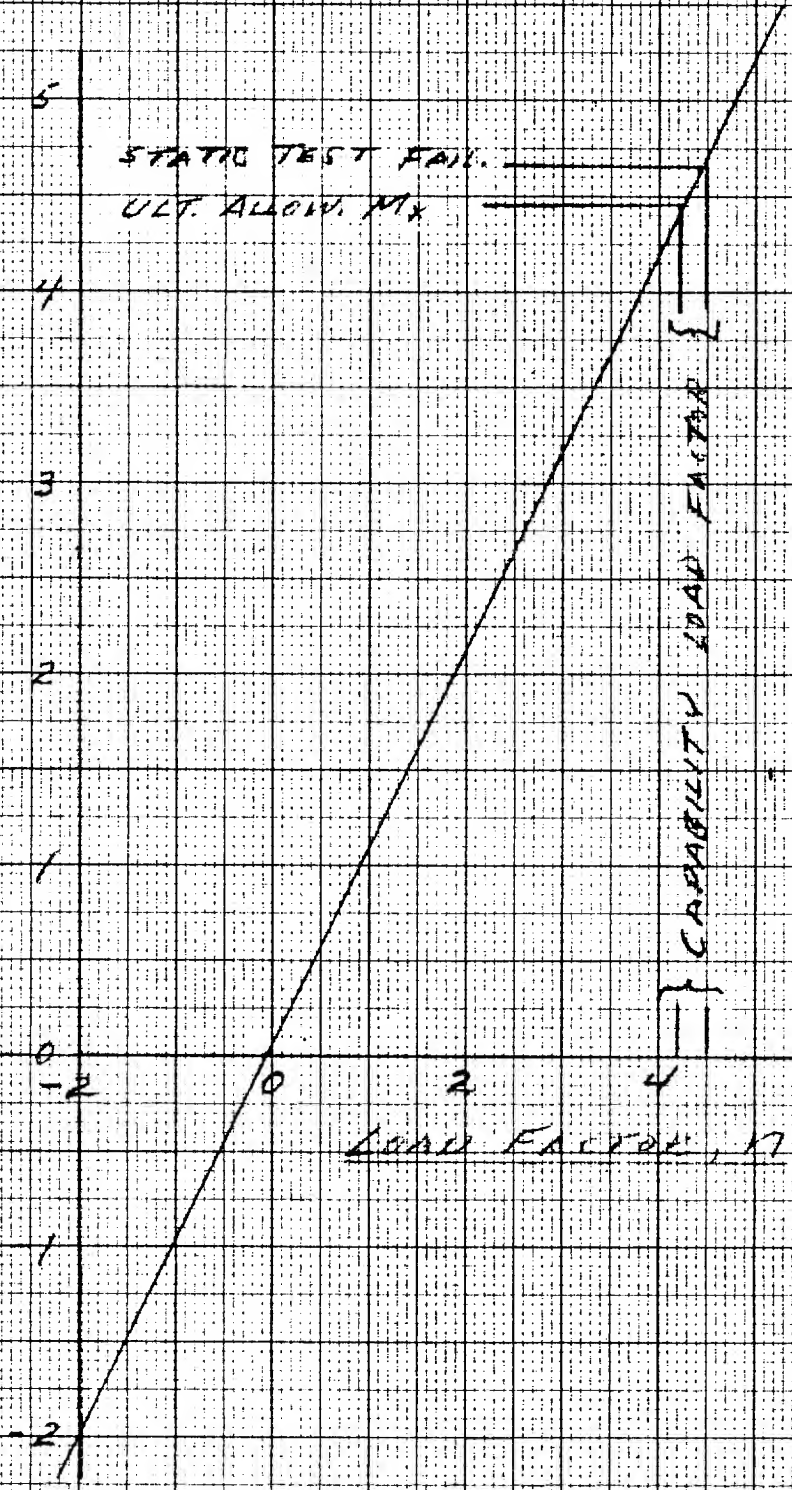


FIGURE 1

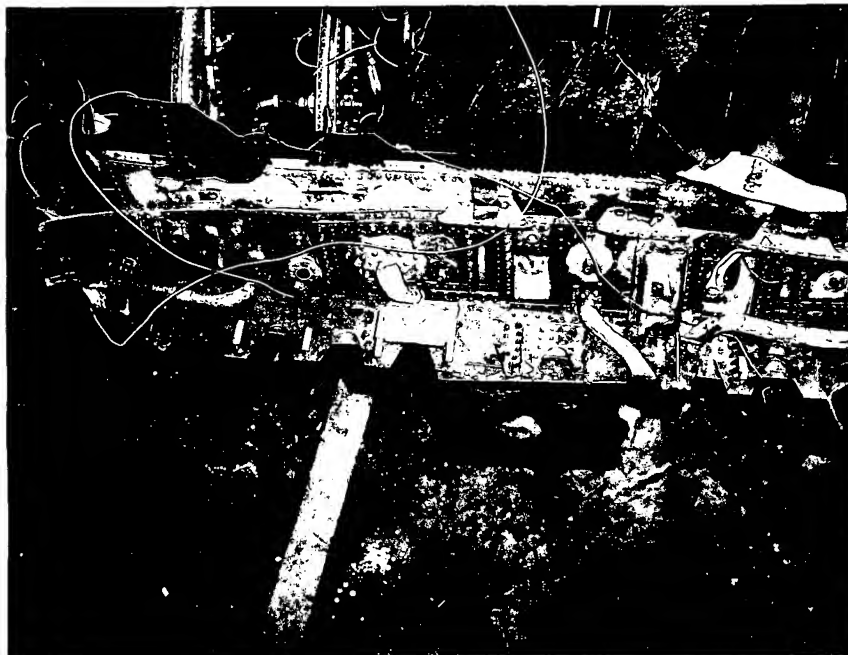


FIG. 2 - LEFT HAND WING ROOT - FWD. PORTION.  
LOOKING DOWN AND INBOARD ON LOWER  
SURFACE INITIAL FAILURE.

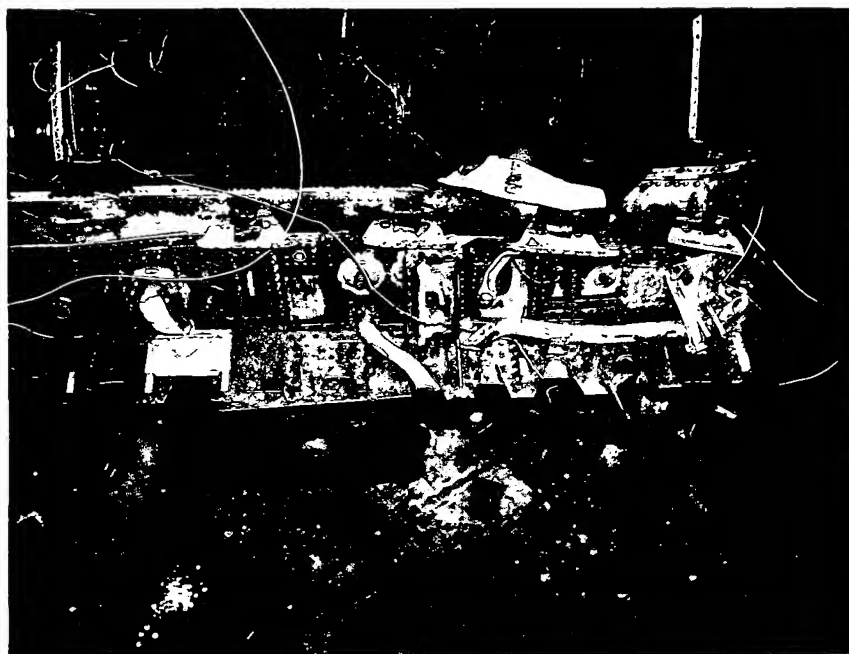


FIG. 3 - LEFT HAND WING ROOT - AFT PORTION.  
LOOKING DOWN AND INBOARD ON LOWER  
SURFACE INITIATOR FAILURE.



FIG. 4 - WING AT 100% MAXIMUM UP BENDING ULTIMATE  
COND II B. REF. REPORT LR 10571.

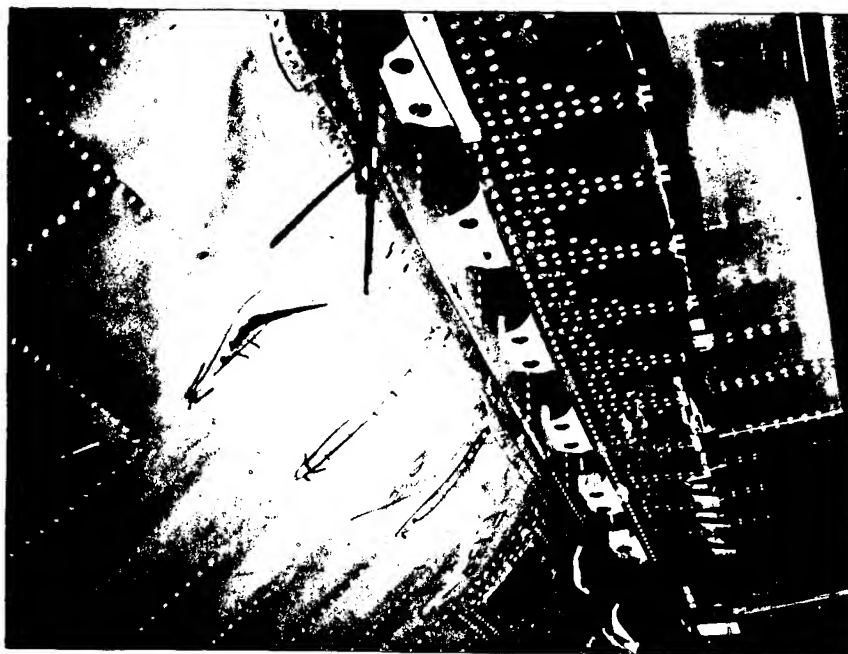


FIG. 5 - WING ROOT LOWER SURFACE FAILURE AT 110%  
ULTIMATE COND. II B. REF. REPORT LR 10571.

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TO:

March 18, 1966

FROM:

SUBJECT: METALLURGICAL ANALYSIS OF SECTIONS OF FAILED WING,  
MODEL U-2, S/N 342

Three sections of failed wing which were submitted for metallurgical analysis are shown in Figures 1-3.

Specimen "A" (Figure 1) is a portion of lower skin of left wing at in-board end. Forward (chordwise) portion of primary failure is shown at right in photo. Enlarged view of typical surface of fracture in lower skin is shown in Figure 4. Photo-macrograph of a section cut normal to surface of fracture in skin is shown in Figure 5. This fracture was ductile in nature and resulted from single application of tensile overload. Microstructure (Figure 6) of skin material is normal for 7075-T6 sheet. All fracture surfaces in lower skin were similar in appearance. No evidence of fatigue, stress - corrosion or material defects was found in skin fractures.

Enlarged view of fracture in lower skin stiffener is shown in Figure 7. Photo-macrograph of a longitudinal section of stiffener taken normal to surface of fractures is shown in Figure 8. These fractures were also ductile in nature and resulted from single tensile overload. Microstructures shown in Figure 9 are normal for 7075-T6 extruded material. No evidence of fatigue, stress - corrosion or material defects was found in stiffener fractures.

Tensile test coupons were machined from skin and stiffener material in specimens A and B (Figures 1 and 2) and tested with the following results:

	<u><math>f_{tu}</math></u>	<u><math>f_{ty}</math></u>	<u><math>e</math></u>
Spec. A - Skin	76.6 KSI	69.9 KSI	9%
	76.2	69.3	9
	76.3	69.5	10
Spec. A - Stiffener	89.8 KSI	88.2 KSI	10%
	89.6	79.5	10
	91.4	85.7	8
Spec. B - Skin	76.4 KSI	70.0 KSI	10%
	76.5	69.9	10
	76.8	70.3	10
Spec. B - Stiffener	93.6 KSI	85.7 KSI	10%
	91.7	83.1	9

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These data satisfactorily meet or exceed specified minimum values for 7075-T6 material.

LCK:wm



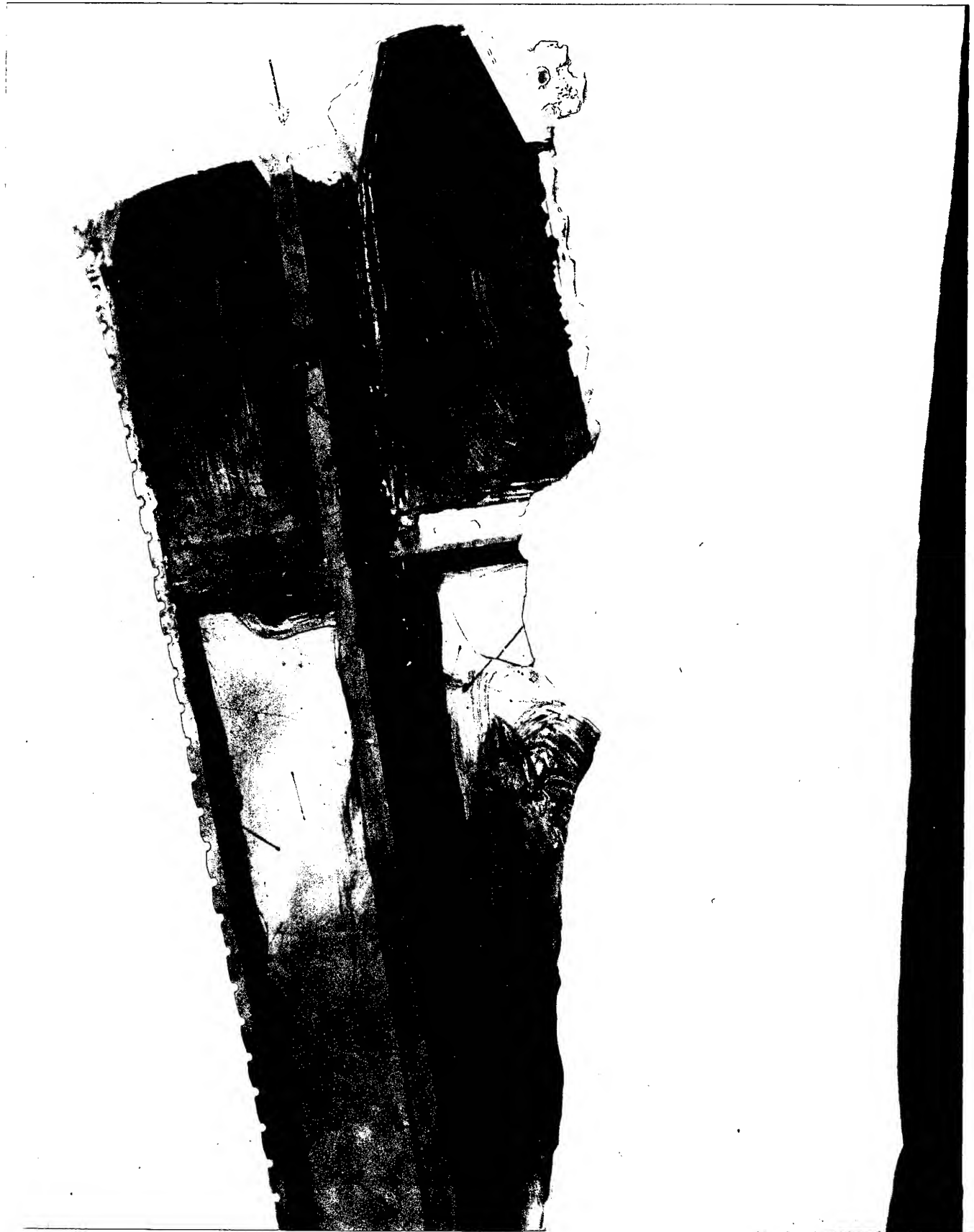


FIG. 1 - LEFT WING, LOWER SKIN, FORWARD PORTION OF PRIMARY TENSION FAILURE

*neg # 7754*

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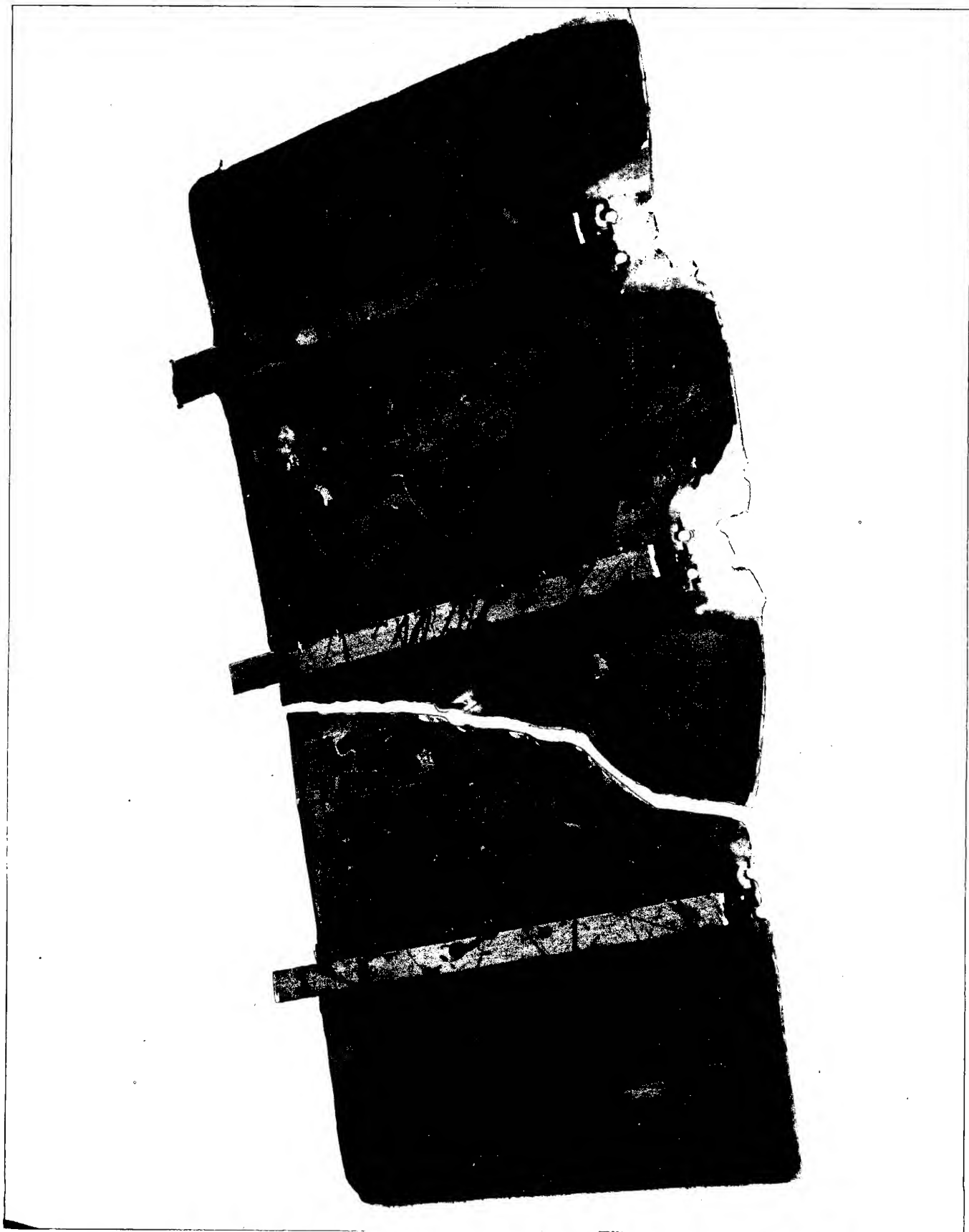


FIG. 2 - LEFT VIEW, LOWER SIDE, AFT PORTION OF PRIMARY EVIDENCE PACKAGES





FIG. 3 - LEFT WING, UPPER SKIN, FORWARD PORTION OF SECONDARY BENDING FAILURE

*neg 7755*

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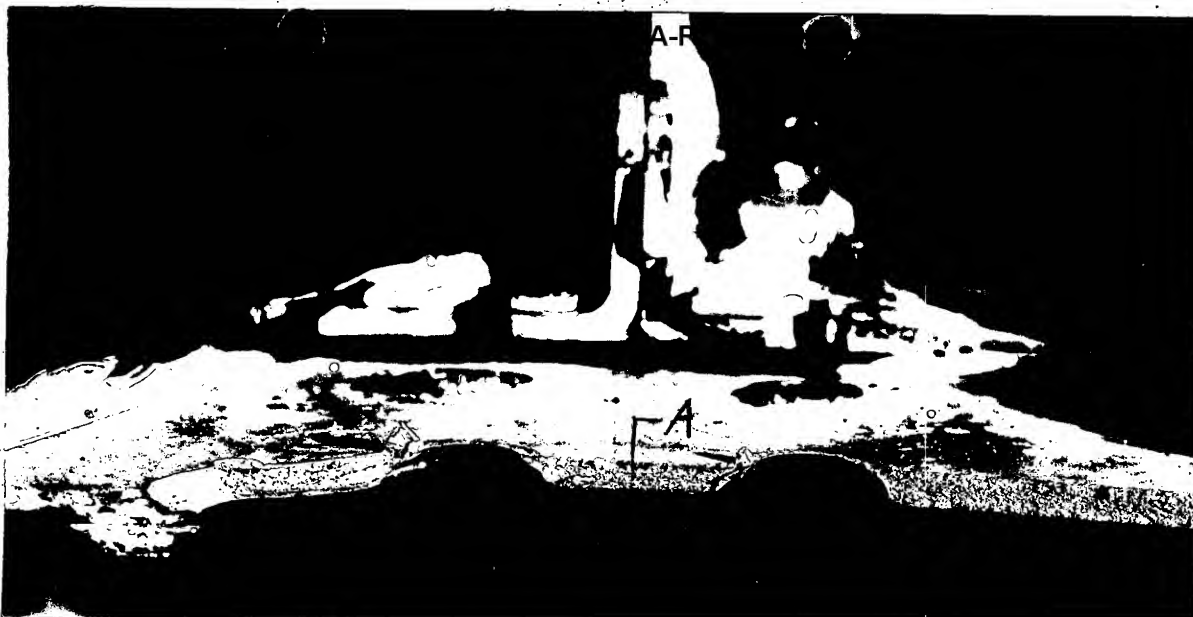


FIG. 4 - APPEARANCE OF FRACTURE SURFACE IN LOWER SKIN AT LOCATION INDICATED BY ARROW IN FIGURE 1. APPEARANCE OF ALL SKIN FRACTURES WAS SIMILAR. 20X

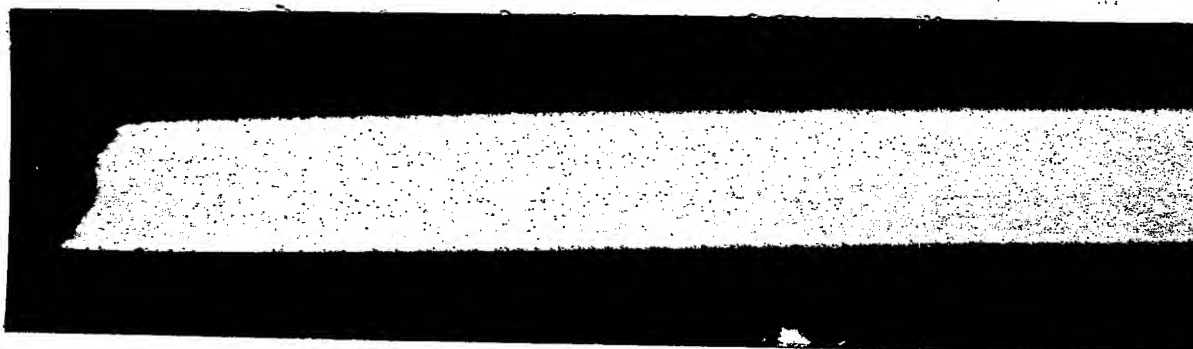


FIG. 5 - MACROGRAPH OF SECTION CUT NORMAL TO FRACTURE ON PLANE A-A IN FIGURE 4. 10X

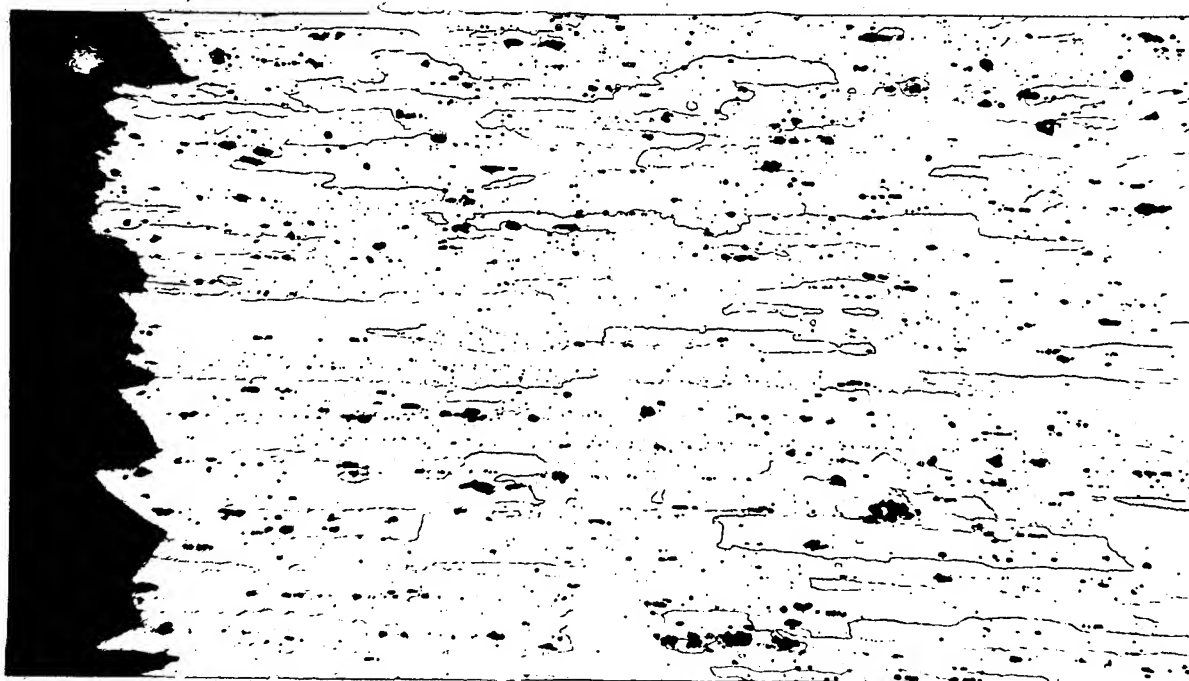


FIG. 6 - MICROGRAPH OF SECTION SHOWN IN FIGURE 5. MICROSTRUCTURE IS NORMAL FOR 7075-T6 SHEET MATERIAL. 200X

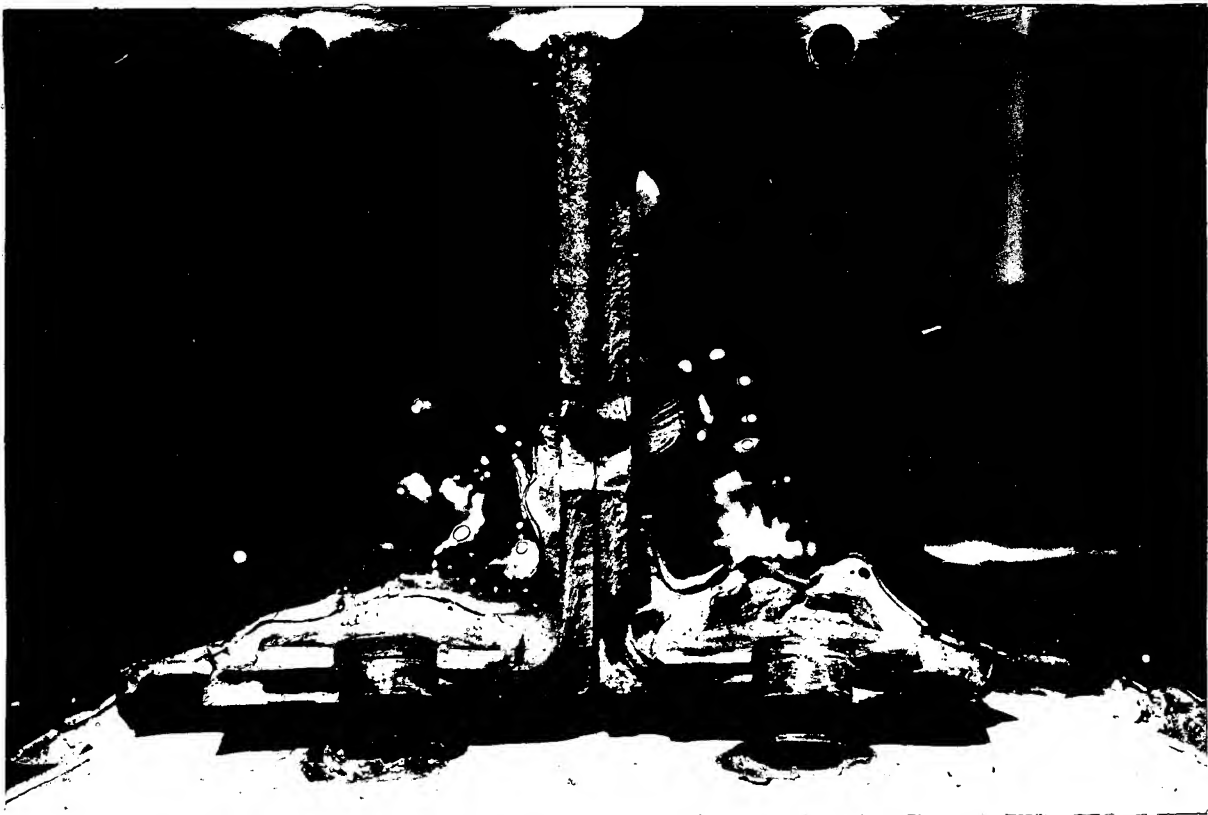


FIG. 7 - APPEARANCE OF FRACTURE SURFACE IN STIFFENERS AT LOCATION INDICATED BY ARROW IN FIGURE 1. APPEARANCE OF FRACTURES IN ALL LOWER SURFACE STIFFENERS WAS SIMILAR. 2X

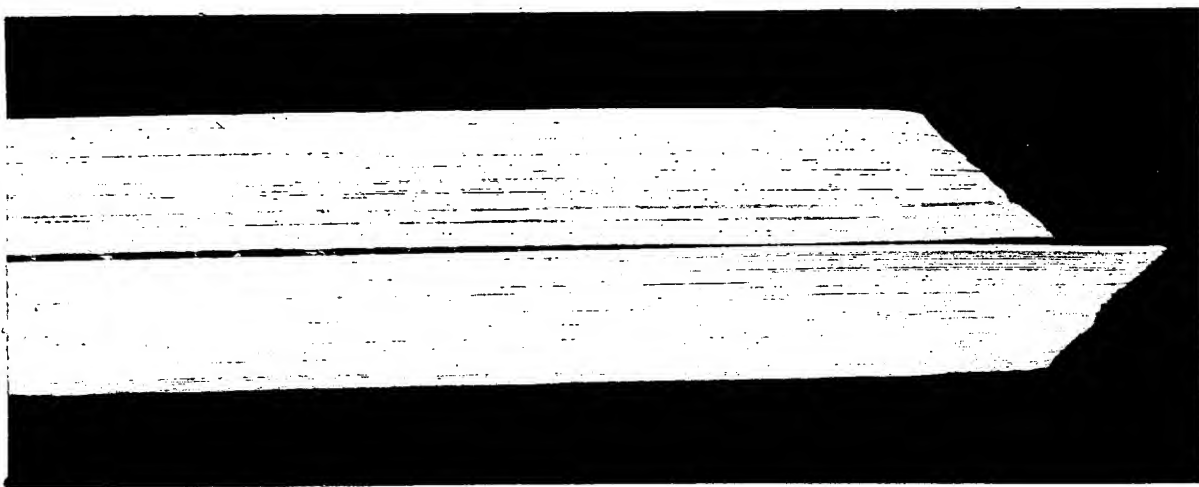


FIG. 8 - MACROGRAPH OF SECTION CUT NORMAL TO FRACTURE ON PLANE A-A IN FIGURE 7. 10X

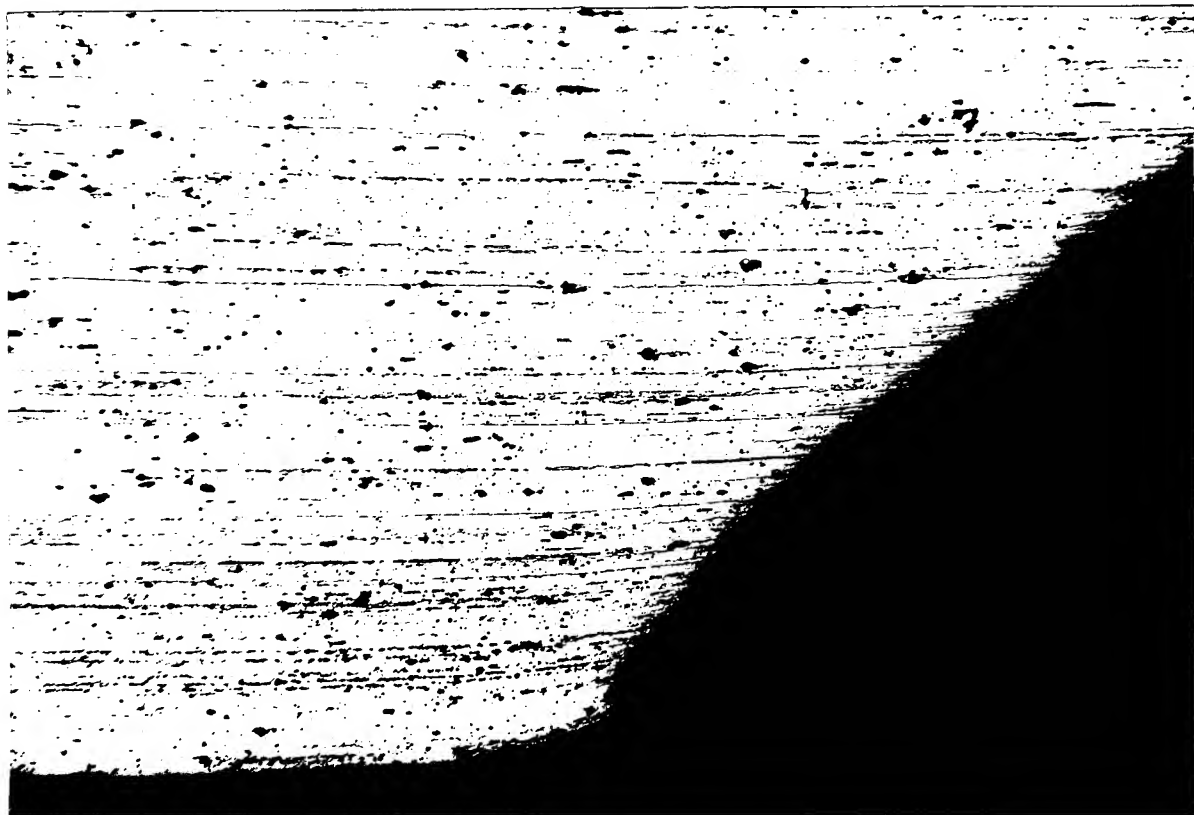
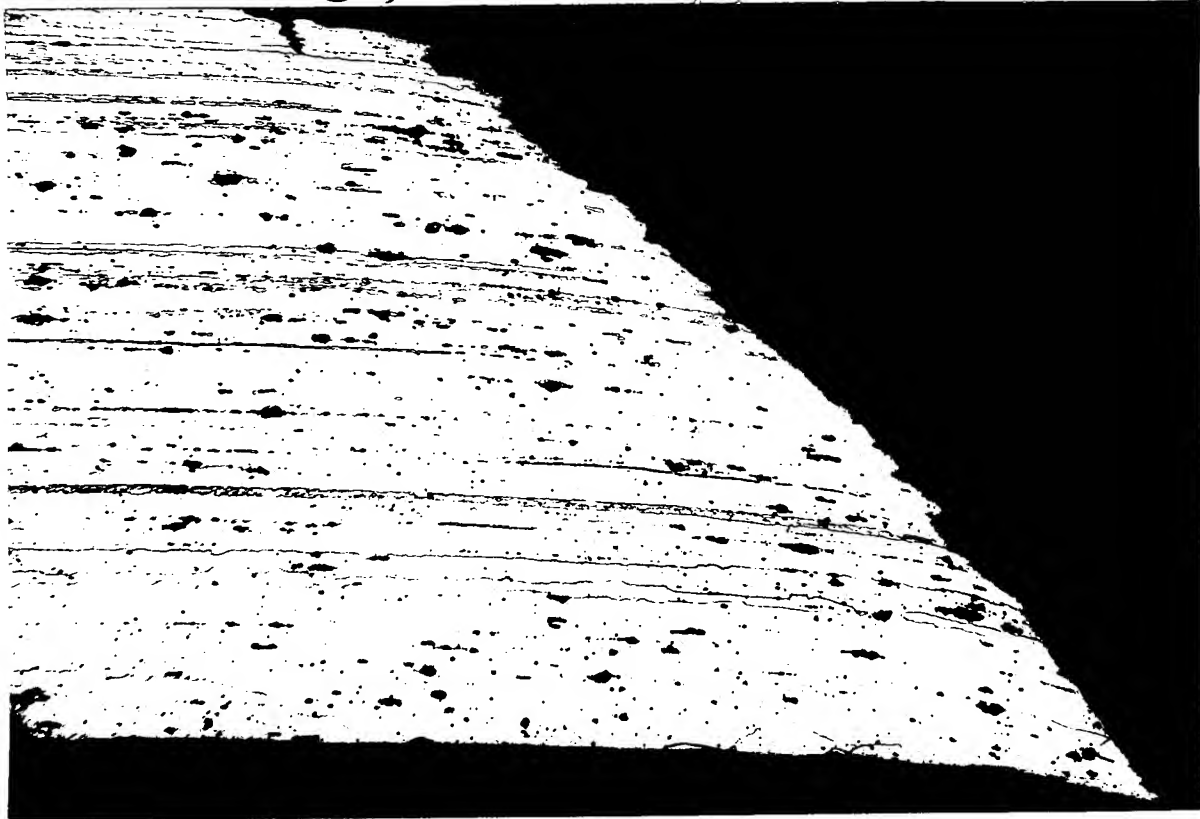


FIG. 5 - MICROGRAPHS OF SECTION SHOWN IN FIGURE 3. MICROSTRUCTURE SHOWN IS NORMAL FOR 7075-T6 EXTRUDED MATERIAL. 200X



MEMORANDUM FOR THE RECORD:

(Current Date)

SUBJECT: Chronological Events of Article 342 Accident (Search and Recovery)

The following is a report of the activities which transpired within the unit following the accident of Article 342 which occurred on 25 February 1966. For ease of arrangement the activities will be <sup>DESCRIBED</sup> ~~arranged~~ in chronological sequence.

Friday - 25 February 66

At approximately 1022 PST a U-2, number 342 (N801X), piloted by [REDACTED] lost a wing as it pulled out and away from a KC-135 following a routine dry refueling operation. Disintegration of the aircraft took place at approximately 35,000 feet, over Enchanted Valley, California. The location was approximately 35 miles NNW of Edwards Air Force Base. [REDACTED] were flying chase in a T-33 and witnessed the accident along with several members of the KC-135 crew.

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The pilot ejected successfully and was observed as his parachute deployed. Both the T-33 and KC-135 remained on the scene in an orbiting pattern until the pilots location could be determined. Radio contact <sup>AMONG THE</sup> between T-33, KC-135 and WRSP-4 Operations was maintained. Two (2) air rescue helicopters were dispatched from Edwards Air Force Base. [REDACTED] were picked up by the helicopter at North Edwards to render assistance in retrieving the pilot. [REDACTED]

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Word was received that the engine from 342 had been seen impacting on the ground by [REDACTED] a forest ranger, who was in the area at the time. The

ranger agreed to meet [REDACTED] at the general store located at Sand Canyon, California. A party consisting of [REDACTED]

[REDACTED] departed for the store. There, they were met by the forest ranger and two Kern County Deputy Sheriffs. The party was directed to the engine impact area and a security detail was established. Contact was made with [REDACTED] and arrangements were made for security personnel

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to remain overnight on his property.

25X1A At approximately 1300 PST, [ ] was debriefed at North Base. Brig General  
25X1A Ledford, [ ] were present for the  
debriefing. The debriefing was tape-recorded for purposes of producing transcripts to be  
utilized in the investigation.

The pilot did not require hospitalization and a routine physical examination  
25X1A was administered. [ ] did not suffer any fractured bones and appeared to be  
in good physical condition.

25X1A Brig General Ledford appointed [ ] the investigating officer for  
the accident. A call was placed to Beale Air Force Base and arrangements were  
made to have the KC-135 crew at North Base for debriefing at 1000 PST on the  
following morning.

25X1A Messages were sent directing [ ] return to North Base. He  
arrived at Edwards at approximately 2200 PST.

Saturday - 26 February 66

The Beale AFB KC-135 crew was debriefed at 1000 PST and a general discussion  
took place at North Base. Headquarters, LAC and squadron personnel participated  
25X1A in the debriefing, [ ] chaired the debriefing. The crew described the  
maneuver as approximately a 20 degree climb and 20 degree bank at the time of  
the aircraft disintegration.

One U-3 flight was conducted in an attempt to locate additional debris.  
A group of 10 squadron personnel continued ground search operations in the area  
where the engine was found. Also, contact was made with the inhabitants of the  
area to enlist their cooperation and support. The air search was hampered by bad  
weather.

The engine impacted in a sparsely populated area. The ground elevation in the area  
ranged from 3,000 to 6,000 feet above sea level. The ground party returned to  
home base late in the evening. Two security people remained over night at

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[redacted] ranch.

Sunday - 27 February 66

Search operations continued with U-3 flying air cover. The ground party of 8 people continued search utilizing the power wagon and jeeps. No additional debris was located. A security detail again remained on the scene over night.

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Monday - 28 February 66

[redacted] while flying U-3 aircraft, located the complete

25X1A right wing including slipper tank. [redacted] took a series of photos of the wing

from the U-3. The wing was in good condition and part of the fuselage appeared

to be attached. The wreckage was located about 3 and 1/3 miles ENE of the [redacted] ranch. 25X1A

RIGHT WING

It was located on the mountain side at the 5,400 feet level. The most accessible

route to the wing was over a dirt trail which led up to within 3/4 mile of the wing site.

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A ground party consisting of [redacted] (Main base survival 25X1A

tech), [redacted], was dispatched to the scene and made plans to reach the wing. The

party remained over night at the Rod and Gun Club, located about 1 1/2 miles East of the wing at the 4,300 ft level. It was planned that the party would begin hiking up

to the wing on the following morning. It was estimated that they could reach the wing by early afternoon on the following day. The hiking party would then assess the condition of the wing and make plans for recovery.

At 1300 PST, article 392 was launched to obtain photo coverage of the crash site. The A-2, and T configurations were employed and 6 flight lines were flown over the area on a 2 hour mission. There was some haze in the area of interest but photo results were good.

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25X1A [redacted] and his people, [redacted] worked into the evening and early morning printing and assembling the photos into mosaic form. It was

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planned to have the prints in the hands of the ground party by early morning. The photos were utilized as maps and aids for the ground party. The coordinates of items of interest found to date were:

Pilot landed at: 3518 1/2N 11814W

Engine located: 3518N 118213/4 W

Wing located at: 3520N 11817W

The weather forecast for the next days air search was not encouraging. However, four U-3 missions were scheduled on standby basis.

Tuesday - 1 Mar 66

Today visibility at the right wing site was 50 feet and clouds obscured all the ridges and mountains. A T-33 was dispatched over the area in the morning, but nothing could be seen due to clouds. Weather precluded the use of the U-3 aircraft as an aid for the ground party. The Commander's car and the Mobile International vehicles were moved to the search scene. Both vehicles, equipped with radios, provided ground to air communications.

25X1A [redacted] joined the ground party  
 25X1A (consisting of 13 other personnel) and made contact with the inhabitants  
 of the area to ask their aid and support. Strongest contacts proved to  
 be [redacted]

25X1A The two survival experts and [redacted] a local cowboy, attempted  
 to reach the wing on horses. The low clouds, wind and snow reduced  
 visibility to 30 feet, and these three people were not successful in  
 their attempt to reach the wing. The group did reach a ridge which was  
 higher than the wing site. One of the survival technicians, [redacted] 25X1A  
 had seen the wing from the air on 28 Feb. Total time expended in the attempt  
 was about four hours. The wind was so strong that the horses refused to  
 continue. [redacted] leg was injured when the horse he was riding slipped  
 on a ridge. Snow was estimated to be about 18 inches deep.

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[ ] couriered the debriefing tape to [ ] office for transcript processing. Copies of the transcript <sup>WERE</sup> ~~was to be~~ <sup>COURIERED</sup> ~~to be~~ <sup>AT A LATER DATE.</sup> couriered to Headquarters and North Base for the accident investigation.

The engine debris was loaded on a flat-bed truck and dispatched to home base for inspection and analysis. [ ] and the ground party remained overnight at the Rod & Gun Club along with security personnel.

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The only piece of wreckage found on this date was a section of the drain pipe. [ ] <sup>WAS</sup> located the pipe approximately 1 mile south of the right wing.

Wednesday - 2 Mar 66

Base camp was firmly established at the Rod & Gun Club. The club was owned by a group from Bakersfield, Calif. The area where the wreckage was later found was on the land owned by [ ] [ ] ranch is located about <sup>3</sup>/<sub>2</sub> miles from the Rod & Gun Club. Due to heavy snow, movement in the area on this date was almost impossible. Lug tires and a winch were installed on the power wagon to help contend with the snow. Also a winch was installed on one of the jeeps to aid other search vehicles up and down the mountains.

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[ ] proceeded to the Barstow, Calif Marine Corps supply depot and obtained much needed supplies. Four VHF mobile radios were <sup>ALSO</sup> procured to aid in communications between the base camp and the mobile search vehicles.

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[ ] returned the ground party of seven personnel to home base in early afternoon. The amount of snow in the mountains made continuation of ground search impracticable. Two security people remained at the Gun Club over-night.

A meeting was held and plans were laid out for future operations. It was decided that on the following day [ ] and a LAC engineer would be air-lifted to the wing site by helicopter where preliminary investigation and analysis of the right wing could take place.

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Photography of the area, while most helpful for ground orientation, was not very useful for locating debris. In the days to follow, it was planned that jeeps, aircraft, trail <sup>Y</sup>amaha motor bikes, and horses would all be utilized in search operations.

Thursday - 3 March 1966

The Edwards UH-1B helicopter delivered [ ] and a survival expert to the wing site at 1220L. The party was at the right wing site for about two (2) hours. It was noted that six (6) fuselage rings remained attached to the right wing. There were no signs of wrinkling on the top or bottom of the wing. Pictures were taken of the wing and panels were laid out for future reference.

The helicopter delivered 250 lbs of tools and equipment to the wing site. [ ] flew top cover with the U-3 during the operation. The VHF radios were utilized between the air and ground units and performed in an excellent manner.

[ ] set up equipment and established communications between the Rod and Gun Club and North Base. [ ] proceeded to Bakersfield and contacted [ ] and informed them of our utilization of the Rod and Gun Club. A great deal of cooperation was provided by these men in allowing us to utilize their facilities. Again, security personnel remained on the scene over-night.

[ ] proceeded to east side of mountain where they met [ ] a local rancher. [ ] aided the party <sup>BY</sup> in showing them trails and roads on the east side of the mountain, 14-in-ground-party.

Friday - 4 March 1966

At 1030L a party of 12 men, headed ~~by~~ <sup>BY</sup> [ ], was placed at the wing site by the Marine H46 helicopter. The party was equipped to spend the

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night on the mountain. The party established a camp and began work preparing the wing for extraction by helicopter on the following day. Communication was established between the camp and the Rod and Gun Club by utilization of the VHF mobile radios. Pre-set reports were made to Edwards North Base from the Rod and Gun Club at 0900, 1200 and 1500 hours on progress made on this and the following days.

Weather in the area on this day was clear. Winds averaged about 30 knots from the east. About 12 inches of snow still remained on the ground. The forecast was for more snow during the night. Heavy clouds were moving in over the mountains at 1500L, but it failed to snow during the night.

The mountain party reported that they estimated the wing would be ready for pick up by H-46 in the afternoon of the following day, weather permitting. The party was supplied with additional sleeping bags by the Edwards H-21 helicopter. The party of 12 men spent the night on the mountain 3/4 of a mile from the Rod and Gun Club. Security personnel remained at the Club during the night maintaining communications with the mountain party.

Saturday 5 March 1966

[ ] a LAC enigneer and squadron personnel departed for the [ ] ranch, arriving at 0930 PST. There <sup>WERE</sup> ~~was a total of~~ 24 personnel participating in <sup>GROUND</sup> ~~in~~ search activities on this day. A survival expert and LAC engineer walked up to the wing site for inspection of the wing <sup>PICK UP</sup> ~~before~~ helicopter extraction.

It was decided that [ ] would extract the wing with the Marine H-46 helicopter. He recommended that once the wing was picked up, it be delivered to the closest possible location for placement on a flat-bed truck. The field adjacent to the [ ] ranch was selected as the loading point. Permission was obtained to utilize [ ] field for the flat-bed loading operation. The H-46 arrived on schedule and the wing extraction took place at 1230 PST. The mountain party was then air lifted from the wing site by the

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throughout the day. The crew spotted a section of the right wing root about (300 yards) south-west of the right wing site. A portion of the 618T was also located about 1/4 mile west of the right wing root.

The debris located on this day formed a definite pattern and helped narrow the area of search. A walking search was planned for the following day with helicopter, and U-3 air support. Two cowboys were also hired to search on horseback. The cowboy search was scheduled to begin on 7 March.

Due to brake failure, a tractor trailer driven by [ ] crashed near Bealeville, Calif about 1500 PST. The driver was delivering 4,500 gallons of JP-4 to the search area from North Base to aid in support of the air operations. The tractor and tanker was demolished and the driver was taken to Bakersfield Hospital.

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At 1800L all the vehicles, except the power wagon, a jeep, yamaha motor bikes, were driven back to home base. The aircraft wreckage was also delivered to North Base. All personnel returned from the scene of the search and no security people were required to remain overnight.

A meeting was held at home base at 2100 PST and plans were laid out for the next days operations. A party of 10 hikers was alerted for the search on the following day.

#### Sunday 6 March 1966

This proved to be a very profitable day. The weather was warm with clear skies and good visibility. Winds were light to calm. Twenty-three personnel participated in ground search activities. The walking party began combing THE CANYONS the most likely canyons where debris might be found. The party consisted of 10 squadron personnel assisted and directed by two survival experts. The walking search was completed at 1500L with no signs of debris being located. The H-43 helicopter and U-3 flew air search. [ ] was in radio communications with air, ground and mobile units from an Command Post established on a high ridge overlooking the canyons where the walking search took place. The H-43 air search proved most impressive and the following items

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were located:

1. Left wing located about 1 1/2 miles east of the right wing site, on east side of mountain.
2. Fuselage, forward of the wing, located about 1/3 mile west of right wing.
3. The tail section, aft of the rotating beacon, and some skin from the fuselage located about 1/3 mile west of the right wing site.
4. The cockpit section located about 2/3 mile-east-north-east of the

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[ ] ranch.  
[ ] camper was moved to the [ ] ranch and set up for utilization by security personnel who would remain on the scene over-night. Search operations were called off for the day about 1700L and the party returned to home base. It was decided that it was time to regroup air and ground forces for the extraction of the newly found wreckage. Arrangements were made to fabricate equipment and assemble needed supplies for the removal of the rest of the wreckage.

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Monday - 7 March 1966

Small ground parties, consisting of 11 squadron personnel, and LAC engineers proceeded to the mountains and inspected the fuselage and left wing. The Systems 9 and 12 were found to be in the debris. Squadron personnel collected equipment thought needed to extract the debris.

Camp was broken at the Rod and Gun Club and supplies and equipment were moved down the mountain to the [ ] ranch. [ ] had given permission for us to establish our command post in the fenced area near his ranch house.

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[ ] moved a travel-trailer to the new command post for utilization of future ground parties.

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Tuesday - 8 March 1966

[redacted] accompanied by two survival technicians,

proceeded to the left wing site on the east side of the Mountain. The day was spent clearing the area around the wing to permit helicopter lift out. Numerous trees were cut and removed in the process.

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[redacted] and other squadron members went up to the cockpit section and inspected the wreckage. [redacted] proceeded

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to the Rod and Gun Club and cleaned up the buildings utilized by our personnel during the previous week. Six bottles of spirits and four cases of "C" rations were placed in the buildings as a token of our appreciation to the members of the Club for the fine support they had provided us.

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[redacted] as the security detail for the overnight stay in the area.

25X1A

Wednesday - 9 March 1966

[redacted] and four other squadron personnel proceeded to the left wing site on the east side of the mountain for the wing liftout operation. The sling was attached to the wing. It was necessary for the helicopter to drop the left wing the first recovery attempt. The site of recovery was on the lee side of a ridge and down slope wind condition existed. This was aggravated by air turbulence resulting from the chopper while in hover and causing the wing to behave in an unstable manner. The second attempt was successful and the wing and fuselage sections were manually loaded on the flat-bed vehicle.

The remainder of the day was spent cleaning up the area. The left wing and all other wreckage were returned to North Base at this time.

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Thursday - 10 March 1966

Aerial search was resumed utilizing LAC Bell Oh-13 Helicopter. Objective of the search was to locate the seat, canopy and left horizontal stabilizer.

No debris was located.

Friday - 11 March 1966

[redacted] and LAC personnel continued search in Bell OH-13 Helicopter.

[redacted] departed for LAC and obtained copies of the debriefing transcripts for [redacted] and Headquarters. The aerial search activities were considered completed on this date. The cowboy search continued through the following day and then was called off.

Signature Block

- 2 attachments:
1. Expenses
  2. Comments

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The following attachment contains the cost breakdown for expense incurred as a result of search operations for article 342. The breakdown will be listed into various areas of expense.

SUPPLIES AND MATERIALS

1. Gas for supply station wagon on 1 Mar 66	\$ 5.88
2. Film for camera on 1 Mar 66	2.16
3. Tire chains and motor oil	19.65
4. Snow shoes:	370.00
5. Water coolers	37.60
6. Power winches for power wagon and jeep	357.00
7. Maps of search area	18.00
8. Overshoes, socks and batteries	88.05
9. Fuel for stove and lanterns	.90
10. Snow tires for power wagon	203.92
11. Film	2.16
12. Aviation fuel	100.00
13. Gas for CO's <sup>car</sup> and power wagon vehicles	15.37
14. Film for Poloraid camera	6.76
15. Five pack tents	260.00
16. Gas cans and spouts	7.80
17. Three gals gas for military vehicle on 6 Mar 66	1.00
18. Gas for military vehicle on 28 Feb 66	3.50
19. White gas for stoves and heaters on 28 Feb 66	1.40
20. Gas for military <sup>RV</sup> vehicle on 8 Mar 66	2.00
21. Gas for military vehicle and butane (propane) <sup>GN</sup> 3 Mar 66	24.62
22. Power saw rental from 3 to 10 Mar 66	52.50
23. Power saw rental from 8 to 10 Mar 66	35.00
24. Travel-trailer rental from 6 to 13 Mar 66	52.00
25. Gas for military vehicle on 5 Mar 66	6.00
26. Camper rental from [ ] from 1 to 14 Mar 66	100.00

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27. Phone bill for long distance calls: 2.10
28. Gas for mil vehicle on 5 Mar 66: 1:50
29. Steam cleaning for power wagon on 24 Mar 66: 10.00
30. Rental and repairs for two Yamaha motor bikes: 165.95
31. Payment to [ ] for search on horseback: 704.00

TRAVEL AND PER DIEM Supplies and Materials Total cost: \$2656.82

The following listing is a total of the squadron personnel who were involved in search activities on the scene of the accident. <sup>THE</sup> <sup>COST</sup> A total figure of cost represents per diem paid to personnel actually participating in the search or traveling to other locations in support of the search:

1. On 25 Feb, 8 squadron personnel took part in search activities.
2. On 26 Feb, 10 squadron personnel took part in search activities.
3. On 27 Feb, 8 squadron personnel took part in search activities.
4. On 28 Feb, 6 squadron personnel took part in search activities.
5. On 1 Mar, 16 squadron personnel took part in search activities.
6. On 2 Mar, 8 squadron personnel took part in search activities.
7. On 3 Mar, 9 squadron personnel took part in search activities.
8. On 4 Mar, 14 squadron personnel took part in search activities.
9. On 5 Mar, 24 squadron personnel took part in search activities.
10. On 6 Mar, 23 squadron personnel took part in search activities.
11. On 7 Mar, 11 squadron personnel took part in search activities.
12. On 8 Mar, 12 squadron personnel took part in search activities.
13. On 9 Mar, 26 squadron personnel took part in search activities.
14. On 10 Mar, 2 squadron personnel took part in search activities.
15. On 11 Mar, 3 squadron personnel took part in search activities.
16. On 14 Mar, 3 squadron personnel collected per diem for travel conducted in support of the aircraft search operations.

Per diem paid to squadron personnel in connection with search and support operations totaled \$2,565.07. Figures includes [ ] <sup>MADE</sup> trips to HDQS on 13 Mar 66, and [ ] trip on 18 Mar 66.

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Govt issue supplies which were procured expressly for support of the search operation consist of the following:

1. Two hundred feet of nylon rope:	\$200.00
2. Thirty flashlights:	33.00
3. Seven lanterns:	19.25
4. One hundred and ninty two flashlight batteries:	9.60
5. Twelve pair gloves:	18.87
6. Fifty units of IF rations:	38.50
7. Thirty six cases of "C" rations:	345.60
8. Six hatchets:	13.80
9. Three axes:	7.80
10. Twelve shovels:	22.20
11. Twenty four pair of sunglasses:	120.00
12. Two cases of dining packets:	28.40
13. One case of paper plates:	12.00
14. One case of cups:	<u>10.60</u>

GI Materials Total cost: 879.62

FULL

The following figures were obtained from  for fuel utilized as a result of the search operations from 25 Feb through 11 Mar 1966. All prices are fair local market value per gallon. The figures exclude tax and handling charges.

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1. JP-5 consumed for support of H-46 helicopter. 700 Gals @ .208 per gal.	\$145.60
2. JP-4 consumed for T-33 flights. 2750 gals @ .208 per gal.	572.00
3. JP-4 lost in tanker accident on 5 Mar near <sup>Stateville</sup> Caliente, Calif. 4500 gal.	936.00
4. 115/145 octane used for OH-13 helicopter. 200 gals @ .387 per gal.	77.40
5. 100/130 octane used for OH-13 helicopter. 220 gals @ .500 per gal.	110.00
6. 91/98 octane for U-3 operation. 320 gals @ .320 per gal.	102.40
7. 74 octane for vehicles used in search. 1845 gals @ .23 per gal.	<u>424.35</u>

Total cost: \$2367.75

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THE FOLLOWING

Figures obtained from [redacted]

The helicopter

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support rendered to us by Edwards AFB, Santa Anna Marine Facility, LAC and

George AFB was estimated to be the following:

H-46 Marine helicopter utilized for 7 hours.

H-43 helicopter utilized for 9.30 hours.

H-21 helicopter utilized for 3 hours.

UH-1B helicopter utilized for 3.30 hours.

LAC BELL-OH-13 helicopter utilized for 8 hours.

The following information on helicopter cost of operation per hour was

obtained from [redacted] at the Army Aviation Test Activity at Edwards

Air Force Base:

UH-1B \$170.49 per hour.

OH-13B 69.31 per hour.

H-46 718.16 per hour.

H-43 150.00 per hour.

H-21 168.04 per hour.

Total cost for helicopter search if charged at the rate of operation cost

per hour would amount to \$8,089.76. This figure will not be added to totals as it did not actually cost us anything for this support.

The following list contains the total cost of expenses acutally incurred as a result of the search operation from 25 Feb to 12 Mar 1966.

Supplies and Materials:	\$2656.82
Per diem for travel incurred:	2565.07
Gov't issue supplies purchased or used up as a result of search:	879.62
Operational expenses:	204.19
Fuel of all types:	<u>2367.75</u>

Actual total cost: \$8673.45

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COMMENTS:

MADE ABOUT SEARCH ACTIVITY

The following comments can be drawn from the activities of the search operations<sup>CONDUCTED</sup> from 25 Feb to 12 Mar 1966.

a. Helicopter and U-3 air search was invaluable. The aircraft accomplished the job of locating and extracting the wreckage in a more efficient manner than could have ever been accomplished by walking ground search. When a piece of debris was located, a call was made to a radio-equipped Jeep in the area. The helicopter would then hover over the debris and direct the Jeep to the site by means of the VHF mobile radios. Jeeps, helicopters and mobile radios were an unbeatable combination in this particular operation. The fine cooperation and support from Edwards AFB, George AFB, Santa Anna Marine Facility, and LAC was the primary reason for the success achieved in the search.

b. Air to air, air to ground, and point to point communications were essential for the coordination of the several operating groups and units in the search area. The coordinated effort between air and ground units proved to be the best of any working combinations. In addition, the mobile Command Post in the field proved to be an <sup>VERY</sup> invaluable asset.

c. The Dodge Power Wagon and Jeeps were indispensable for getting into the area of operation. These vehicles proved to be real work horses for hauling equipment and other vehicles up the steep, muddy trails and getting support gear into the area of search.

d. The fact that there were witnesses to the accident was fortunate indeed. It would have been almost impossible to locate the wreckage had it not been for KC-135 and T-33 observers who got a fix on the location of the accident after it had occurred.

e. Personal contact with the inhabitants of the area proved very helpful.

provided much needed information about the roads and trails and <sup>INDICATING</sup> ~~other means of~~ access to the wreckage <sup>SITES,</sup> site. Also, a great deal of support and cooperation was obtained in securing permission to utilize the

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f. The Yamaha motor bikes, while useful, were not as valuable an aid as had been expected. The terrain was much too rugged for utilizing the bikes in a profitable manner.

g. Headquarters and home base support was excellent. The team on duty at home base insured the smooth all round operation by providing support as it was required. <sup>THIS</sup> The team monitored activities via the communications system and performed a superb job in lining up assistance from other units when needed. Headquarters provided unquestioned support upon request and it was greatly appreciated.

h. ~~A total of \$204.19 was utilized for obtaining gifts. These gifts were~~ <sup>GRATUITIES IN THE AMOUNT</sup> ~~of \$204.19 were~~ given to the members of the Rod and Gun Club as a token of our appreciation

for their support. [ ] was also given a token gift for his <sup>ASSISTANCE</sup> help in serving as a guide in the area. [ ] indicated verbally that he would not file a claim for any damages incurred to his property as a result of the aircraft accident.

[ ] at the Edwards Air Force Base Claims Office, stated that [ ] 25X1A  
[ ] was awarded \$125.00 on 21 Mar 66 for damages incurred as a result of the 25X1A  
JP-4 being spilled on his field on 5 Mar 66. [ ] also stated that a claim 25X1A  
would be forthcoming for damages incurred to the automobile owned by [ ] 25X1A

[ ] <sup>INVOLVED</sup> in the accident with the fuel tanker driven by [ ] <sup>ON 5 May</sup> The tractor and 25X1A  
fuel tanker unit which was demolished in the accident was valued at \$13,000.

i. Accurate maps of the area were needed as the terrain was so rugged and the locale so sparsely populated. The photography obtained aided in updating the maps so that trails and roads into the area could be located and annotated.

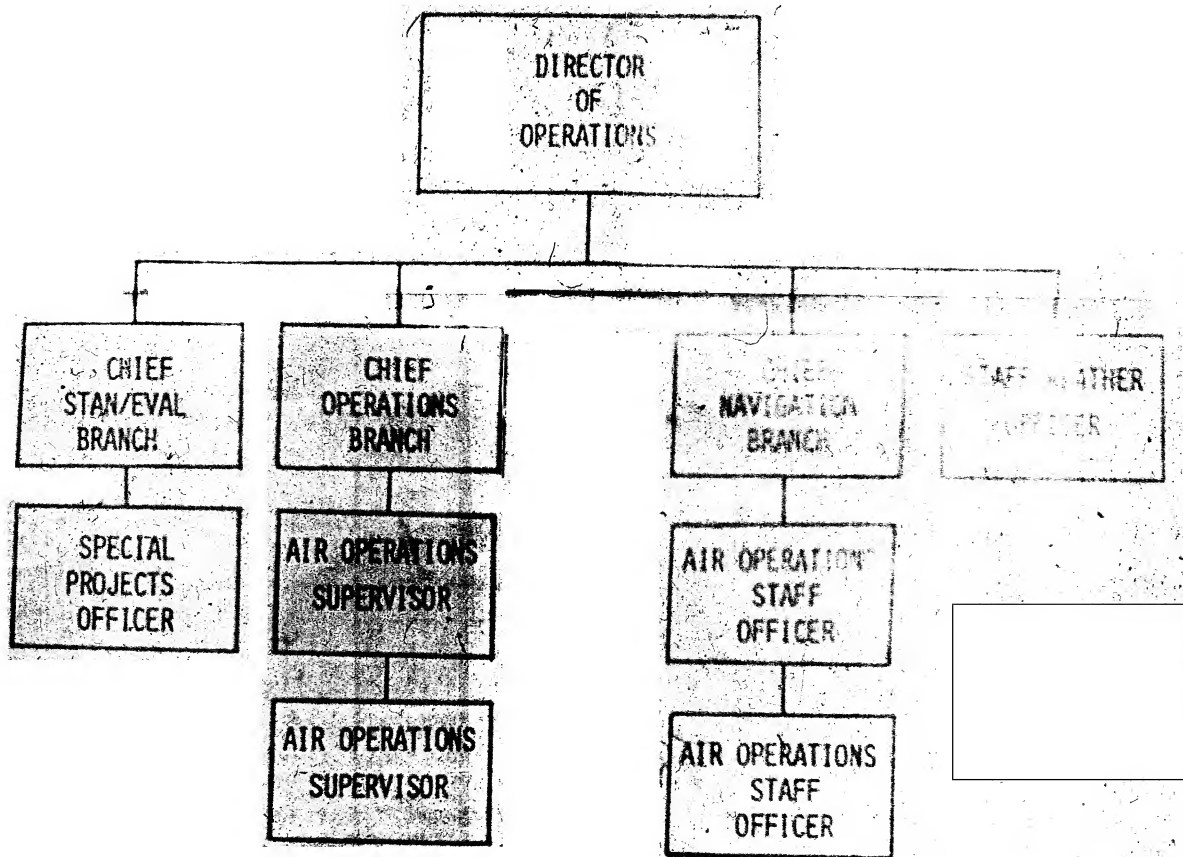
k. In summary, success in a search of this type depends upon having an adequate source of supplies and equipment, professional personnel and excellent communications.

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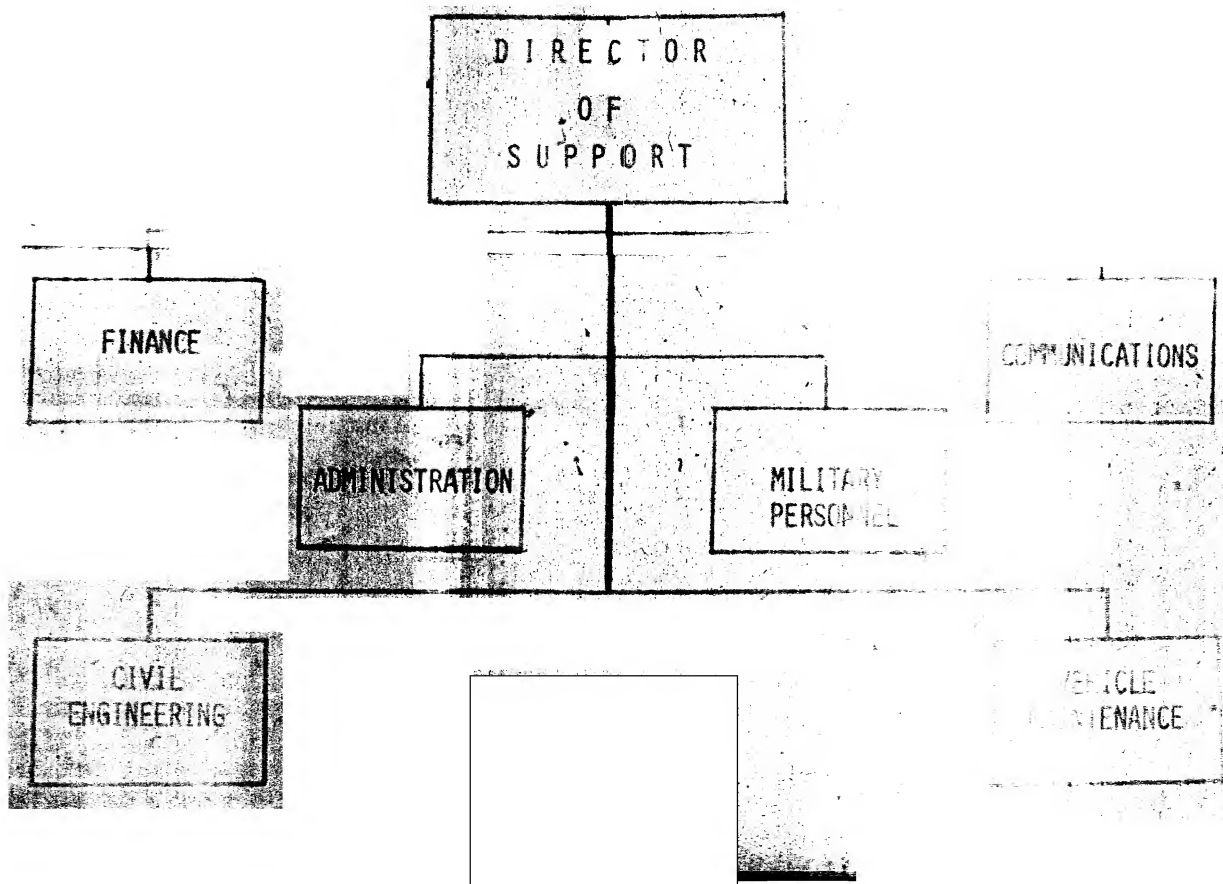
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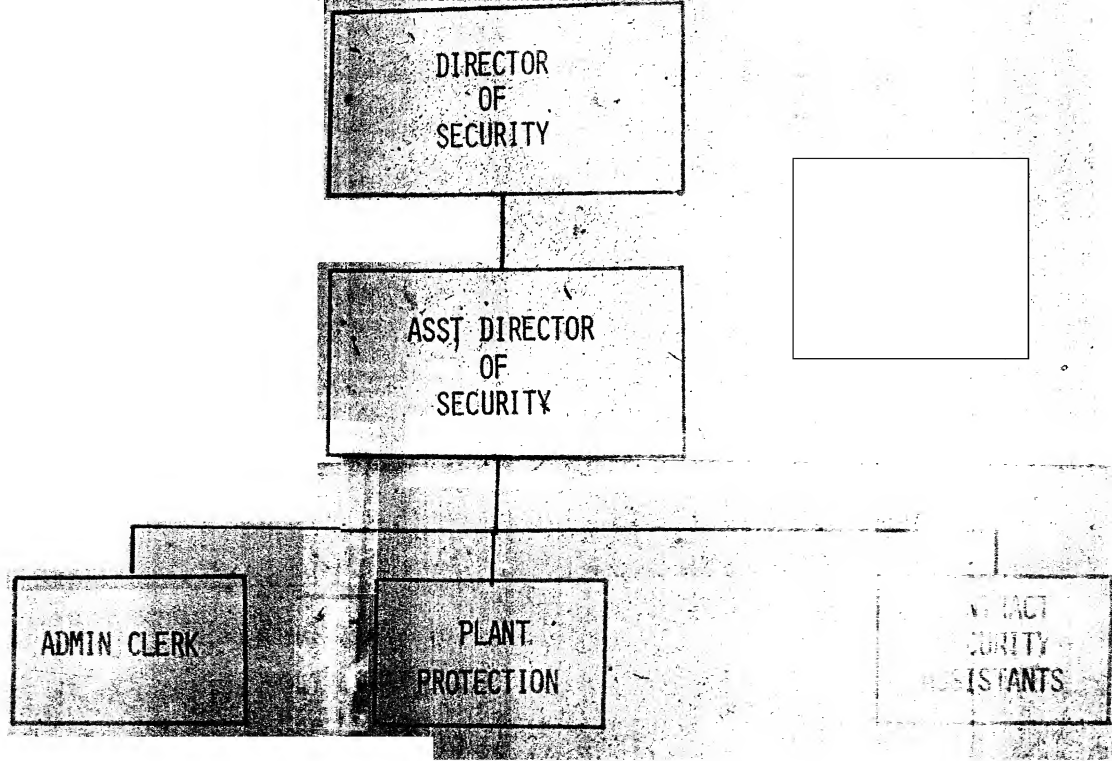
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- SMALL, QUICK REACTION
- HIGH CALIBER PEOPLE
- VERSATILE, MANY ACTIVITIES
- GUARANTEED RESULTS
- QUESTIONS?

